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A STRIDULATORY MECHANISM IN ARHAPHE
CICINDELOIDES WALKER

(Hemiptera:Heteroptera:Pyrrhocoridae)

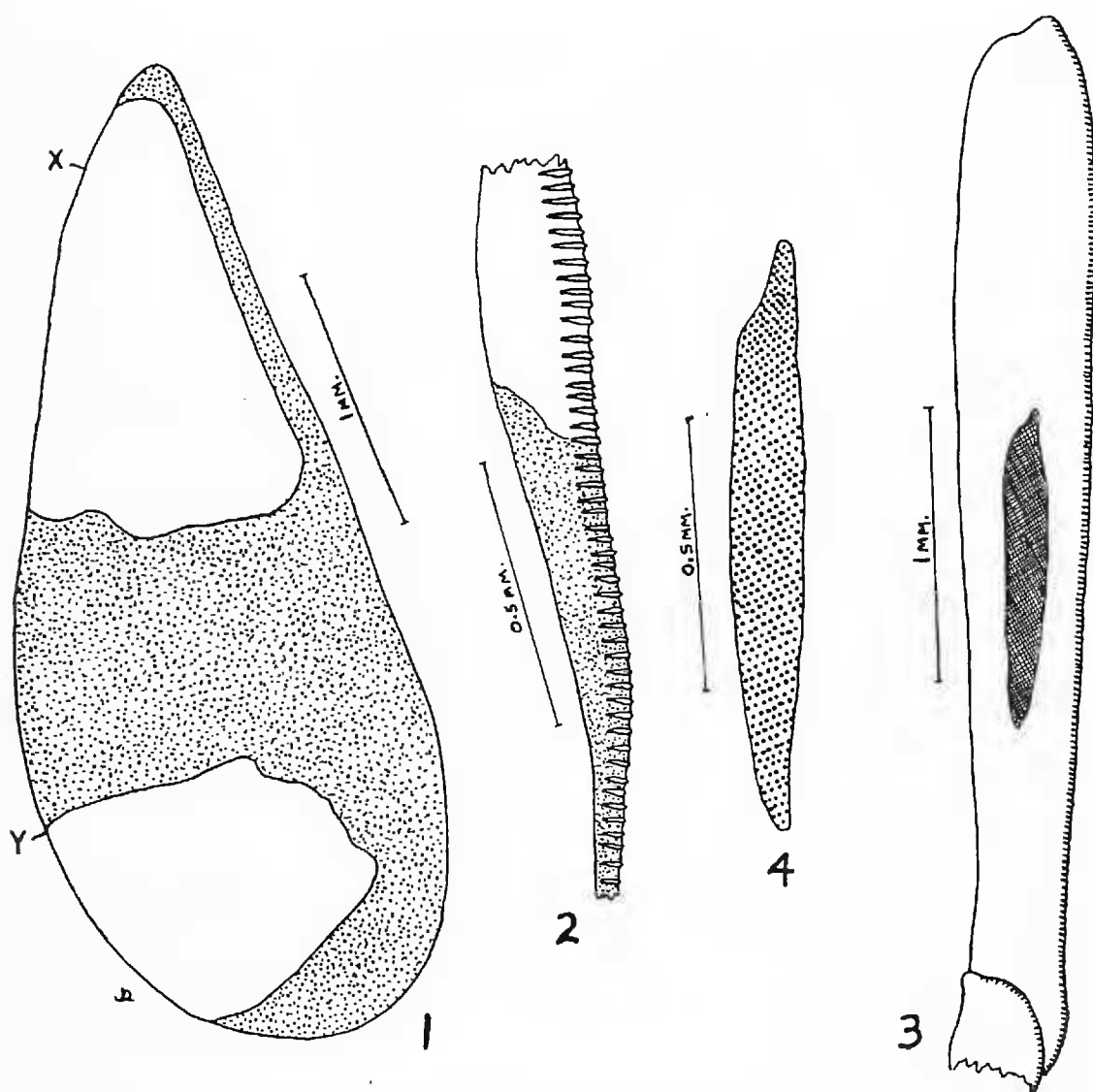
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Stridulation in the Heteroptera has received only limited attention during the long period that this taxon has been studied. The recent summary by Leston (1957) has provided a thorough review of the accumulated knowledge on the subject. As Leston states (*loc. cit.*, p. 370), only the Aradidae (Usinger, 1954) and the Pentatomorpha (Leston, 1954) have received recent treatment. When the general paucity of information is considered, it is perhaps unwise to draw sweeping conclusions based on such a small amount of information. This is particularly true in the face of conclusions reached by Usinger (*loc. cit.*, p. 543) in the Aradidae, in which he feels that stridulatory mechanisms have arisen independently at least five times within that family and are not of any fundamental phylogenetic significance. Investigation now in progress tends to support this idea in the Lygaeidae. That they may prove valuable in certain groups is demonstrated by Leston (1957:372), in which all of the genera of Cydnidae examined exhibited the same type of wing strigil. Thus, as with any character, its relative value must be determined for each group under consideration before broad generalizations can be made.

A structure of apparent stridulatory nature was observed in *Arhapse cicindeloides* Walker during the routine identification of a small collection of Heteroptera. The stationary portion, or

strigil, is located on the outer edge of the hemelytron, occupying most of the margin (Fig. 1). The strigil consists of series of short ridges running at right angles to the long axis of the wing (Fig. 2). These ridges are approximately 0.04 mm. long and there are about 38 ridges per millimeter. The mobile portion, or plectrum, is located on the caudal surface of the hind femur in a central position (Fig. 3). It consists of an elongate area with minute papillae arranged in rows (Fig. 4). This portion is rubbed against the wing margin. The mechanism is found in both sexes. A literature search has failed to disclose any previous mention of a stridulatory mechanism in the genus *Arhapha* or in the family Pyrrhocoridae.



EXPLANATION OF FIGURES

Stridulatory mechanism of *Arhapha cicindeloides* Walker. Fig. 1, Left hemelytron (setation omitted), X-Y indicates region occupied by strigil. Fig. 2, Lateral view of portion of hemelytron showing details of strigil. Fig. 3, Left rear femur, caudal view, showing location and extent of plectrum. Fig. 4, Enlargement of plectrum showing arrangement of minute papillae.

Mr. Peter D. Ashlock, University of California, Berkeley, kindly checked the two other species of *Arhapse*, *A. breviata* Barber and *A. carolina* H.-S. in the collections of the California Academy of Sciences and states that they have a mechanism similar to that found in *A. cicindeloides*. Thus the structure apparently is a generic character and should be added to the general generic description.

Arhapse is included in the tribe Largini (Euryophthalmini) of the Larginae (Euryophthalminae) by Hussey (1929). *Japetus* and *Thaumastaneis*, the other myrmecoid genera related to *Arhapse*, should be examined for similar structures. Representatives of two other genera included in the Largini, *Largus* and *Stenomacra*, were examined but no stridulatory mechanisms were observed. A thorough study of sound producing organs within the relatively small family Pyrrhocoridae would do much to further our knowledge of the systematic value of these structures.

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NOTES ON THE COLLECTION OF PHLEBOTOMUS STEWARTI MANGABIERA AND GALINDO

(Diptera:Psychodidae)

The collections of *Phlebotomus stewarti* Mangabiera and Galindo were made while collecting mosquitoes with an American model Mosquito Light Trap. The light source was a 50 watt white frosted vibration service bulb. The trap was located 10 feet from a stable with the light source five feet above the ground. The stable is located on a hillside approximately 100 yards from a small creek which runs most of the year, and there is also a